Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Proposals to Permit Reducing Orbital Spacings Between U.S. Direct Broadcast Satellites	)	
	)	Report No. SPB-196
Petition of DIRECTV Enterprises, LLC For a Rulemaking on the Feasibility of Reduced Orbital Spacing in the U.S. Direct Broadcast Satellite Service	)	

REPLY COMMENTS OF ECHOSTAR SATELLITE L.L.C.

Pursuant to Section 1.415(c) of the Commission's Rules, 47 C.F.R. § 1.415(c), EchoStar Satellite L.L.C. ("EchoStar") hereby submits its reply comments in response to the Public Notice on the feasibility of allowing Direct Broadcast Satellite ("DBS") operators to provide service in the United States from orbital locations at less than the current nine-degree spacings,[1] and to the Petition for Rulemaking filed by DIRECTV Enterprises, LLC ("DIRECTV").[2]

While some parties expressed concerns about the potential for interference to current and future DBS operations from reduced orbital spacings and others offered their technical assessments on how best to permit additional satellites to operate in the DBS frequency band without causing unacceptable interference, no commenter has seriously disputed

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[1] *International Bureau Seeks Comment on Proposals to Permit Reducing Orbital Spacings Between U.S. Direct Broadcast Satellites*, Public Notice, Report No. SPB-196 (rel. Dec. 16, 2003); *see also* Comments of EchoStar Satellite L.L.C., Report No. SPB-196 (Jan. 23, 2004) ("EchoStar Comments").

[2] *See* Petition for Rulemaking of DIRECTV Enterprises, LLC (filed Sept. 5, 2003) ("*DIRECTV Petition*").

EchoStar's position that reduced orbital spacings for DBS satellites serving the United States is feasible and has the potential to promote spectrum efficiency and increase operational flexibility for DBS licensees, thereby making the DBS service a more viable long-term competitor to the dominant cable television companies.[3] In addition, EchoStar has found significant support for its view that, while 4.5-degree spacings can eventually yield tremendous benefits for American consumers, existing DBS systems and services must be protected and their technical flexibility must be preserved.[4]

Any notion that the Commission should establish a spectrum cap preventing any current DBS operators from access to DBS spectrum must be rejected.[5] Such restrictions are not appropriate without a finding of market power in a relevant market. For that reason, the Commission has rejected the notion of an eligibility restriction barring DBS providers from competing in the MVDDS auction and in the scheduled DBS auction. Such a cap is inappropriate not only because there is no problem to cure, but also because it would cause

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[3] *See* EchoStar Comments at 1; *see e.g.*, Comments of Pegasus Development Corp., at 1, 4 ("Pegasus Comments") ("[A]dditional satellites can be permitted to operate in the DBS band without causing unacceptable interference to existing users."); Comments of SES AMERICOM, Inc at ii ("SES AMERICOM Comments") ("From the technical perspective, reduced orbital spacing is feasible in many circumstances."); Comments of The Boeing Company at 1-2 ("Boeing Comments").

[4] *See* EchoStar Comments at 2; *see e.g.*, Comments of DIRECTV, Inc. at 4-5 ("DIRECTV Comments") ("DIRECTV has identified certain key policies that should guide the Commission's decisionmaking process with respect to the introduction of short-spaced DBS satellites at 12 GHz. These are: (1) the protection of existing services and infrastructure investments by operational DBS systems using the 12 GHz band, and (2) the preservation of the technical flexibility required for such operational DBS systems to continue to grow and innovate as they strive to provide vigorous competition to incumbent cable television systems."); Boeing Comments at 2 ("[T]he Commission should refrain from authorizing any short-spaced DBS network if the new satellite system will cause harmful interference to existing services."); Comments of Bell ExpressVu LP at 2 ("Bell ExpressVu Comments"); Comments of Telesat Canada at 4-5 ("Telesat Canada Comments").

[5] *See* Pegasus Comments at 1-2, 5-6.

significant harm by preventing existing DBS providers from alleviating their spectrum handicap compared to digital cable.

EchoStar maintains that if the Commission decides to conduct a rulemaking to address reduced orbital spacing of DBS satellites, it should simultaneously examine access into the United States market from all non-U.S. DBS orbital positions. As EchoStar noted in its initial comments in this proceeding, many of the same policy issues and public interest considerations arise whether access into the U.S. market is from foreign DBS orbital slots (such as the 72.5° W.L. proposal recently filed by DIRECTV)[6] or from U.S. and non-U.S. DBS orbital locations with reduced spacings. For example, the potential availability of other non-U.S. DBS slots for service into the United States could affect the number and location of reduced-spaced DBS satellites.

Lastly, the Commission should dismiss Telesat Canada's attacks on EchoStar's pending DBS applications. EchoStar's applications for 4.5-degree spaced satellites are fully consistent with the framework and modification procedures of the BSS Plans.

I. REDUCED ORBITAL SPACING IS TECHNICALLY FEASIBLE AND HAS THE POTENTIAL TO PROMOTE SPECTRUM EFFICIENCY AND INCREASE OPERATIONAL FLEXIBILITY, THEREBY MAKING DBS A MORE VIABLE COMPETITOR TO CABLE

While some parties expressed concern about the potential for interference from reduced orbital spacings and others offered technical assessments on how best to permit additional satellites to operate in the DBS band without causing unacceptable interference to existing users, no commenter seriously disputes EchoStar's assessment that reduced orbital spacing for DBS satellites serving the United States is feasible and has the potential to promote

[6] *See* Public Notice, Report No. SAT-00187 (Jan. 15, 2004).

spectrum efficiency and increase operational flexibility for DBS licensees, thereby making DBS a more viable long-term competitor to the dominant cable television companies.

The Commission has observed that significant advances in technology, such as digital modulation, digital encoding and advanced error correction techniques, have resulted in use of technical parameters on DBS satellites that differ from those upon which the Region 2 BSS Plan was based. DBS operations at 4.5-degree orbital spacings, subject to appropriate safeguards, are the next logical technological step in the development of DBS service. Because the required ratio of signal to noise and interference (referred to as "C/(N+I)") for current channel operations is far below the level considered necessary when the ITU Region 2 BSS Plan was created, much higher levels of adjacent satellite interference can now be tolerated. Advances in satellite beam shaping technology further permit careful coordination of power levels and frequencies delivered to different parts of the service area thereby allowing adjacent satellites to be designed to maximize their mutual compatibility.

By exploiting these advances in technology, Pegasus rightly points out that operation of 4.5-degree spaced DBS satellites with 45 cm receive earth station antennas is feasible, provided that the difference in EIRP (or PFD) between adjacent satellites is maintained within certain bounds.[7] Pegasus further observes that the resulting allowable EIRP (or PFD) level of the new 4.5-degree spaced satellites will change as a function of the characteristics of the adjacent satellites which in turn will depend on the specific satellites and operators involved, and will vary over time as the existing operators deploy new satellites. The only way to guarantee compatible DBS operations in this environment, while maintaining the necessary flexibility for the new 4.5-degree spaced satellites, is to carefully manage the EIRP differences between

[7] Pegasus Comments, Technical Appendix, at A-1.

adjacent satellites across their service areas. Such a requirement to carefully manage EIRP differences could be accommodated during the coordination process or possibly by FCC rule.

As EchoStar noted in its initial round of comments in this proceeding, the Commission's recently revised DBS regulatory regime includes minimal technical restrictions to promote maximum flexibility for DBS licensees.[8] In the *DBS Report and Order*, the Commission emphasized that its DBS policies and rules are designed to: (i) streamline DBS regulation; (ii) increase MVPD competition; (iii) promote spectrum efficiency; and (iv) preserve flexibility for DBS licensees.[9] The pending satellite applications filed by SES AMERICOM and EchoStar based on 4.5-degree spacings between DBS satellites will serve to promote all of these objectives.[10] Specifically, authorizing new DBS satellites to operate 4.5 degrees from existing orbital locations could double the number of available DBS orbital slots, thereby making more efficient use of limited DBS spectrum that would otherwise lie fallow. The additional DBS channels afforded by 4.5-degree spacing also would enable DBS operators to provide a broader range of MVPD services to consumers. Thus, permitting 4.5-degree spacing between DBS satellites serving the United States can help make DBS a more viable long-term competitor to the dominant cable television companies.

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[8] *See Policies and Rules for the Direct Broadcast Satellite Service,* Report and Order, 17 FCC Rcd. 11331 (2002) ("*DBS Report and Order*").

[9] *See id.,* ¶¶ 1, 105.

[10] *See* FCC File No. SAT-PDR-20020425-00071 (Apr. 25, 2002); *see also* FCC File Nos. SAT-LOA-20030605-00109 (FCC Call Sign S2453 (June 5, 2003); SAT-LOA-20030606-00107 (FCC Call Sign S2450) (June 6, 2003); SAT-LOA-20030609-00113 (FCC Call Sign S2454) (June 9, 2003).

II. THE COMMISSION MUST PROTECT EXISTING DBS SERVICES AND SYSTEMS AND PRESERVE TECHNICAL FLEXIBILITY

EchoStar found significant support for its assertion that, in a reduced orbital spacing environment, existing DBS systems and services must be protected and that technical flexibility must be preserved.[11] In this regard, EchoStar agrees with the State of Hawaii that "the addition of short-spaced satellites must not degrade the quality of existing services..."[12] The DBS industry and U.S. consumers have spent billions of dollars on DBS transmission and reception equipment. As noted by Boeing, "[a]ny effort to improve the efficiency of DBS orbital spacing should not jeopardize this investment."[13] EchoStar further concurs with the following position advanced by DIRECTV:

> [A]ny attempt to accommodate tweener satellite systems at 12 GHz in the U.S. portion of the geostationary orbital arc must not be permitted to stifle the important public interest benefits that...DBS operators currently are pursuing and planning to pursue, such as the continued rollout of HDTV programming, and the continued development and introduction of innovative new satellites and services by operating DBS systems.[14]

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[11] *See* EchoStar Comments at 2; *see e.g.*, Bell ExpressVu Comments at 2 ("[A]ny changes to the ITU's Region 2 Plan ...must accommodate existing networks which have been built to support Broadcasting Satellite Service based on this Plan."); DIRECTV Comments at 4-5; Boeing Comments at 2.

[12] *See also* Comments of the State of Hawaii at 1-2, 5-6 ("[T]he addition of short-spaced satellites must not degrade the quality of existing services, making them either unavailable to some consumers, or requiring the replacement of existing reception equipment with larger receive antennas."). EchoStar does not believe, however, that reduced orbital spacings would result in less opportunities for DBS coverage in Hawaii. Residents of Hawaii should have little difficulty receiving acceptable DBS transmissions in a reduced orbital spacing environment and will stand to reap the same benefits of reduced orbital spacing (*e.g.*, more DBS services) as any other U.S. DBS subscriber.

[13] Boeing Comments at 2.

[14] DIRECTV Comments at 5.

That said, EchoStar is confident that new DBS satellites can serve the United States using 4.5-degree spacings while at the same time preserving existing and future DBS operations from the current U.S. DBS locations, provided that they comply with appropriate safeguards.

III. THE COMMISSION MUST NOT RESTRICT ACCESS TO ADDITIONAL DBS ORBITAL LOCATIONS

Contrary to suggestions made by Pegasus, the Commission must not limit "the licensing of new orbital locations to new entrants" or "to those who have not entered into essentially exclusive arrangements with the only two existing operators with systems capable of providing full-CONUS service."[15] The concept of DBS eligibility restrictions has repeatedly been rejected by the Commission and should not be imposed here.[16] As the Commission concluded less than two years ago:

> Because we continue to view DBS as offering a strong competitive alternative to cable systems, we have not found any competitive problems with allowing a DBS operator to operate in more than one full-CONUS orbital position, and indeed allowing such operation may enable DBS operators to better compete with cable systems in the future. Consequently, we will not adopt any restrictions on the number of full-CONUS orbital locations one satellite company can control.[17]

Pegasus erroneously claims that Commission adoption of a full-CONUS spectrum cap "would be consistent with past Commission practice."[18] However, Pegasus relegates to a

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[15] *See* Pegasus Comments at 1-2.

[16] *See e.g., DBS Report and Order*, 17 FCC Rcd. at 11399, ¶ 144 (2002); *Auction of Direct Broadcast Satellite Licenses*, Order, AUC-03-52, FCC 04-8 (rel. Jan. 15, 2004), at ¶¶ 24, 26 ("We decline to adopt any eligibility restrictions for the three available licenses at the 175° W.L., 166° W.L., and 157° W.L. orbit locations...We leave open the question of whether particular circumstances might warrant different eligibility rules for the available license at 61.5° W.L.").

[17] *See DBS Report and Order,* 17 FCC Rcd. at 11399, ¶ 144.

[18] Pegasus Comments at 5.

footnote the fact that the Commission later recognized that such a cap was not necessary and, in fact, could jeopardize the ability of DBS operators to remain competitive with cable companies.[19] Moreover, in addition to being unnecessary, such a cap would in fact prove to be quite harmful. Cable operators continue to invest in fiber optic cable and convert to digital technologies enabling them to expand their channel capacity and program offerings. To compete on anything close to an equal footing, DBS licensees must be allowed to access significant additional satellite bandwidth.

IV. TELESAT CANADA's INTERNATIONAL PROPOSAL TO CONSIDER REDUCED ORBITAL SPACING AND ITS ATTACKS ON ECHOSTAR's PENDING DBS APPLICATIONS ARE MISGUIDED

Telesat Canada argues that "the appropriate venue for decisions on satellite spacing or other changes to the Region 2 BSS Plan is the ITU."[20] Moreover, Telesat Canada appears to be proposing an ITU regulatory initiative relating to 4.5° spacing that is simply not necessary.[21] The introduction of 4.5-degree spaced DBS satellites can be achieved today through the existing modification procedures in the ITU Appendix 30 BSS Plan. There is no need to study this in the ITU Working Parties and Study Groups, as proposed by Telesat Canada, and then propose a complete rewrite of the Region 2 BSS Plan at some future World Radio

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[19] *See e.g., Tempo Satellite, Inc. and DIRECTV Enterprises, Inc.*, Order and Authorization, 14 FCC Rcd. 7946, 7955, ¶¶ 18-19 (1999) ("[B]ecause cable operators are increasing their product offerings, DBS operators will have to increase their product to remain competitive. DBS operators seeking to expand their service offerings will need increased channel capacity. For this reason, we find that DIRECTV's acquisition of the Tempo channels will improve its ability to compete with cable operators."); *MCI Telecommunications Corp. and EchoStar 110 Corp.*, Order and Authorization, 16 FCC Rcd. 21608 (1999).

[20] *See* Telesat Canada Comments at 6.

[21] *See id.* at 5-6.

Conference, which would be in 2011 at the earliest.[22] This is not the most effective and efficient means to respond to the urgent demands for more DBS spectrum in the U.S. today.

Telesat Canada's claims regarding EchoStar's pending DBS applications are equally misguided and hypocritical.[23] In its DBS application for 86.5° W.L., for example, EchoStar clearly states that coordination with the Canadian assignments will be required.[24] The MSpace analysis is not necessary to draw this obvious conclusion. Rather, MSpace is a software tool for determining *which* administrations are affected, rather than an aid to coordinating with those administrations. EchoStar is not "glossing over" the need to coordinate with Canada. However, EchoStar is confident that coordination with the Canadian assignments 4.5-degrees away from 86.5° W.L. can be achieved in a similar way to how Canada apparently intends to fulfill its obligation to coordinate its 72.5° W.L. BSS modification with Mexico's prior modification to the Region 2 BSS Plan at 77° W.L. (also 4.5-degrees away). In essence, both EchoStar and Telesat Canada are in the same position in that they believe that coordination with a 4.5-degree spaced neighboring satellite can be achieved, irrespective of any MSpace analysis.

In addition, Telesat Canada's claim that "some of the ideas cited to achieve coordination, such as beam shaping and power roll-off, clearly cannot be used in a co-coverage

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[22] Because it is too late to add such an item to the agenda of the next World Radio Conference ("WRC") in 2007, the earliest WRC where such an item could added to the agenda will be the 2011 conference.

[23] *See* Telesat Canada Comments at 4 & n.3.

[24] *See* File No. SAT-LOA-20030609-00113, Attachment 1 (Technical Annex), at 5, ¶ 10 ("While the potential for interference to the Canadian modifications to the BSS Plan, which include CONUS in their service area, will be somewhat greater, it is expected that compatible operation of these networks with the EchoStar 86.5W satellite can be achieved through coordination.").

coordination situation" is simply wrong.[25] Beam shaping and power roll-off *within the service area* can be used effectively to minimize the EIRP differences between neighboring satellites, and hence maximize their mutual compatibility from an interference perspective. However, the exploitation of these technical solutions can only be realized through detailed coordination between the satellite operators and their administrations. EchoStar's applications for 4.5-degree spaced satellites are therefore fully consistent with the framework and modification procedures of the BSS Plans.

EchoStar further maintains that if the Commission decides to conduct a rulemaking to address reduced orbital spacing of DBS satellites, it should simultaneously examine access into the United States market from all non-U.S. DBS orbital positions. As EchoStar noted in its initial comments in this proceeding, many of the same policy issues and public interest considerations arise whether access into the U.S. market is from foreign DBS orbital slots (such as the 72.5° W.L. proposal recently filed by DIRECTV) or from U.S. and non-U.S. DBS orbital locations with reduced spacings. It is not merely a question of applying the Commission's *DISCO II* criteria for determining market access which is at stake in the Telesat Canada proceeding, but more fundamentally whether DIRECTV's proposed use of a Canadian DBS slot (even on an STA basis) would affect the number and location of reduced-spaced DBS satellites. In addition, the technical issues associated with coordinating a short-spaced Mexican satellite with a Canadian satellite are fundamentally the same as those now being considered by the Commission in this proceeding.

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[25] *See* Telesat Canada Comments at 4.

V. CONCLUSION

For all of the foregoing reasons and those set forth in its initial Comments, EchoStar respectfully requests that the Commission support the concept of reduced orbital spacings for DBS satellites while ensuring that existing DBS systems and services are adequately protected. In addition, any notion that the Commission should establish a spectrum cap preventing any DBS entities from access to DBS spectrum must be dismissed. All DBS licensees need additional satellite capacity in order to better compete with cable systems that continue to expand their channel capacity and program offerings.

To the extent that the Commission decides to commence a rulemaking proceeding regarding the feasibility of reduced orbital spacings for DBS satellites, the Commission should also consider related issues regarding access to the U.S. from non-U.S. DBS orbital slots. Finally, the Commission should reject Telesat Canada's attacks on EchoStar's pending DBS applications. EchoStar's applications for 4.5-degree spaced satellites are fully consistent with the framework and modification procedures of the BSS Plans.

Respectfully submitted,

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